

WEED REMOVAL DEVICE

Background of the Invention

Technical Field:

This invention relates to gardening tools and more specifically to weeding
5 tools that are used for digging up and removing weeds by the root.

Description of Prior Art:

Prior art devices of this type have relied on a variety of different designs
for removing weeds from the ground; see for example U.S. Patents 3,865,348,
4,281,866, 4,630,366, 4,016,876 and 6,505,869.

10 In Patent 3,865,348, a weed puller is disclosed having a handle with a V-
shaped weed engagement notch extending from one end. A foot engagement
portion extends from the weed notch allowing the user to hold the device in
position and then with the handle move in a rocking manner to pull the weed.

Patent 4,281,866 shows a weed puller and ejector in which a V-shaped
15 slot extends from an elongated handle with an ejector element deployable therein
from a remote spring urged plunger.

A weed cutting and extracting tool is claimed in U.S. Patent 4,630,366 wherein an adjustable handle is illustrated having a flat retaining spring with a blade that holds the weed after it is cut.

5 A weed extractor can be seen in Patent 6,016,876 in which a bit portion defines a weed engagement jaw that is selectively closed by remote handle and spring urged pivot arm.

Finally, in Patent 6,505,869 describes a combination weeding tool in which a rod attachment has multiple attachment fulcrum allowing for a single weed extraction lifting blade and multiple tined rake deployable about the fulcrum ring.

10 Summary of the Invention

A combination weed engagement and extraction tool for selective one-step gripping and lever action removal of a weed by its roots from the ground. The device combines a jaw activation lever with a fulcrum to enhance the weed engagement leverage needed to pull the weed from the ground.

15 Description of the Drawings

Figure 1 is a perspective, front, side and top view of the weed pulling device of the invention;

Figure 2 is a partial side elevational view thereof;

Figure 3 is an enlarged partial top plan view thereof illustrating the jaw closing in broken lines;

Figure 4 is an enlarged partial side elevational view thereof showing the device of the invention before engaging a weed and engaged on the weed in
5 broken lines;

Figure 5 is an enlarged partial side elevational view thereof showing the invention engaging the weed and removing it in broken lines; and

Figure 6 is a side elevational view of an alternate form of the invention having an offset engagement handle and telescopically extensible shaft.

10 Description of the Preferred Embodiment

Referring now to figure 1 of the drawings, a weed puller 10 can be seen having a handle portion 11 and a weed engagement portion 12. The handle portion 11 has an elongated handle shaft 13 with an end handgrip portion with a contoured end handgrip 14 thereon. The weed engagement portion 12 extends
15 from the distal end of the handle shaft 13 with a flat jaw support element 17 extending angularly from a flat mounting portion 18 thereon. The distal end of the handle shaft 13 is bifurcated by a slot 19 extending inwardly for receiving the mounting portion 18 therein. The pair of longitudinally spaced and aligned

apertures at A extend through respective bifurcated portions 20 and 21 and correspondingly aligned apertures in the mounting portion 18 there between. Fasteners F extend through the so aligned apertures securing the weed engagement portion 12 thereto as will be well understood by those skilled in the art.

The angularly offset flat jaw support element 17 has an angular offset area of reduced transverse dimension at 23 with a plurality of bi-angularly longitudinally spaced notches at 24 there along defining a gripping surface jaw 24A as best seen in figures 3 of the drawings. A movable opposing jaw element 25 has an engagement lever 26 and an activation lever 27 and is pivotally secured to the jaw support element 17 via a pivot pin 28. The engagement lever 26 and activation lever 27 are angularly disposed to one another to impart a "lever" action upon movement in relation to the jaw support element 17 as indicated by directional activation arrow 29.

The jaw engagement lever 26 has a plurality of "teeth" formed along its gripping edge 26B with a spring 26C extending there from to the jaw support element 17 portion in longitudinally alignment with said handle shaft as best seen in figure 3 of the drawings.

The activation lever portion 27 has a control rod 29 pivotally extending there from at 30 to a movable ground engagement leverage arm 31 that pivotally extends from the handle shaft 13 in spaced longitudinal relation to the mounting portion 18 of the weed engagement portion 12 as best seen in figures 2 and 3 of the drawings. The activation arm 31 is angularly disposed from the handle shaft 13 having a shaft engagement pivot pin 32.

Referring now to figure 4 of the drawings, the weed puller 10 of the invention can partially be seen in use as hereinbefore described with the angular offset area of reduced transverse dimension at 23 with the bi-angular spaced notches 24 and opposing movable jaw element 25 to form co-planar weed pinching jaw assembly that is to be positioned about a weed 34,

The user (not shown) by moving the weed puller 10 forward about the weed 34, the activation arm 31 pivotally extending from the handle shaft 13 will simultaneously engage by the ground G retracting the control rod 29 and correspondingly closing the movable jaw element 25 towards the fixed gripping jaw surface 24A defined by the angular offset area of reduced transverse dimension at 23 thus firmly gripping the weed 34 at its base there between as shown in broken lines and in figure 5 of the drawings.

By moving the handle portion 11 arcuately downwardly the ground engaging activation arm 31 acts as a fulcrum pulling the weed 34 easily from the ground G as shown in broken lines in figure 5 of the drawings in broken lines.

Once the weed 34 is removed, the opposing jaws 24A and 25 will be effectively released from the weed 34 engagement position by moving back the handle portion 14. It will be evident to those skilled in the art that upon disengagement from the ground the opposing jaw lever 26 is automatically returned to its open position by a return spring 26C to effectively reset the device for its next weed engagement as illustrated in figures 1 and 3 of the drawings.

Referring now to figure 6 of the drawings, an alternate form of the invention can be seen in which the handle shaft 13 has been modified to form an adjustable handle 40 having a base handle shaft portion 41 with a telescopically disposed parallel offset upper handle grip portion 42 within. Inter-engaging release button 43 allow for the release and alternately locking of the respective handle portions 41 and 42A for extension or collapsation. It will be evident that the offset handgrip portion 42 provides additional leverage advantage by efficiently reducing the distance to the ground that the handle must travel to effectively "lever out" the gripped weed 34, as noted. This alternate handle will

provide for dual use of the weed puller 10 of the invention by effectively
elongating or foreshortening of the handle 40 which may be required in desired
use configuration employed by the user in various weed removal venues. It will
also be evident from the above descriptions that the primary form of the invention
5 illustrated in figure 1 of the drawings can also be telescopically adjustable in
handle length if so required.

It will thus be seen that a new and novel weed extractor device has been
illustrated and described and it will be apparent to those skilled in the art that
various changes and modifications may be made therein without departing from
10 the spirit of the invention.

Therefore I claim: